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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,558	02/28/2002	Ross S. Dando	MI22-1940	2179

21567 7590 06/22/2005
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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,558

Applicant(s)

DANDO ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-21, 31-38 and 45-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-21, 31-38 and 45-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 28, 2005 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 53 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant requires "are totally received within peripheral lateral confines of said chamber housing". It is uncertain if Applicant refers to the "substrate processing chamber" or to the "plenum chamber". The Examiner assumes in the action said chamber is Applicant's "plenum chamber".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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5. Claims 14-17, 19-21, 31, 32, 34, 37, and 38 are rejected under 35 U.S.C. 102(a) as being anticipated by Srivastava; Aseem K. (US 6,225,745 B1). Srivastava teaches a reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38); a first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a first precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a second precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is upstream of both the first and the second plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) and angled (90° as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) such that a purge-gas flow through the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) provides a venturi effect within the plenum chamber (inherent -

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needed to convey gases in 38) relative to the first and second precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) – That a “venturi effect” is present in Srivastava’s body is evident when comparing the structure of Srivastava’s body with Applicant’s body 12, Figure 1. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01). Further, Applicant’s claim of gas identity as being “purge gas” or “precursor gas” is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (*Walter*, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (*In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Srivastava further teaches:

- i. and the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labelled, of Srivastava’s body) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 14
- ii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava’s body) is angled (90° as detailed by both Applicant’s Figure 1 and Srivastava’s Figure 1b) from the plenum chamber

- (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about 80° to 100°, as claimed by claim 15
- iii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is angled (90° as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about 89° to 91°, as claimed by claim 16
- iv. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a first valve (any one of 36; Figure 1b) in the first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), and a second valve (any one of 36; Figure 1b) in the second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 17
- v. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim

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- vi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 20
- vii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 20 wherein the plenum (inherent - needed to convey gases in 38) chamber purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 21
- viii. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38), the body (10b; Figure 1b; column 3; lines 20-44) having a first end (bottom of left-most piping 38; Figure 1b) and an opposing second end (top of left-most piping 38; Figure 1b); a plurality of precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at respective precursor

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inlets (gas feeding connections to left-most pipe 38; Figure 1b) to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is proximate the first end (bottom of left-most piping 38; Figure 1b) and disposed upstream of the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b); the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) disposed at the second end (top of left-most piping 38; Figure 1b) and configured to connect with a substrate processing chamber (16; Figure 1b); and structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the second end (top of left-most piping 38; Figure 1b) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim 31

- ix. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the structure (interface box between 34 and 38; Figure 1b) comprises a projection on the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 32

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- x. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a valve (any one of 36; Figure 1b) in the respective precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 34
- xi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 37
- xii. the manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 37 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 38

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18, 33, 35, 36, and 45-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Aseem K. (US 6,225,745 B1) in view of Onda; Shinzaburo et al. (US 5,395,482 A). Srivastava is discussed above. Srivastava's gas stream on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet through a single-inlet valve (any one of 36; Figure 1b) – claim 45. Srivastava further teaches Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet, - claim 47. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b) – claim 48. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) is configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical – claim 49. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 50. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) further comprising structure (interface

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box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 56. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 59. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) – claim 61.

Srivastava does not teach:

- i. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a 3-way valve in Srivastava's first precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 18
- ii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 33

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- iii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 35
- iv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), one inlet to the 3-way valve being configured for connection with Srivastava's respective precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), another inlet to the 3-way valve being configured for connection with a purge gas line, Srivastava's another inlet being upstream of Srivastava's one inlet, as claimed by claim 36
- v. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; an elongate body (10b; Figure 1b; column 3; lines 20-44) comprising an elongate plenum chamber (inherent - needed to convey gases in 38), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b); Srivastava's plenum chamber (inherent - needed to convey gases in 38) comprising a

plurality of precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) received along Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b), Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with its plenum chamber (inherent - needed to convey gases in 38) precursor inlet and which is oriented substantially normal to Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective multi-inlet valves positioned proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44) in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), the respective multi-inlet valves having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source, another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to Srivastava's plenum chamber (inherent - needed to convey gases in 38) at Srivastava's first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and upstream of all precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) to Srivastava's plenum chamber (inherent - needed to convey gases in 38); a purge gas

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stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) through a single-inlet valve (any one of 36; Figure 1b), Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); and Srivastava's body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) at Srivastava's second longitudinal axis end (top of left-most piping 38; Figure 1b) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 45

- vi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein the multi-inlet valves have only two inlets and only one outlet, as claimed by claim 46
- vii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 48 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 51
- viii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body

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(10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), the respective multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Srivastava's substrate processing chamber (16; Figure 1b), as claimed by claim 52

- ix. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 52 wherein the multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted are totally received within peripheral lateral confines of said chamber housing, as claimed by claim 53
- x. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 54
- xi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into

Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 55

- xii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 55 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 57
- xiii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labelled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), Srivastava's structure (interface box between 34 and 38; Figure 1b) being configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with

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Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical, as claimed by claim 58

- xiv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 58 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 60

Onda teaches:

- xv. Onda's manifold assembly (40; Figure 3) of claim 14 further comprising a 3-way valve (V49; Figure 3) in Onda's first precursor feed stream (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 18
- xvi. Onda's manifold assembly (40; Figure 3) of claim 31 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 33
- xvii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 35
- xviii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate Onda's body (41a; Figure 3), one inlet to the 3-way valve (V49; Figure 3) being configured for connection with Onda's respective precursor feed stream (70/71; Figure 2), another inlet to the 3-way valve (V49; Figure 3) being configured for connection with a purge gas line, Onda's another inlet being upstream of Onda's one inlet, as claimed by claim 36 – Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been

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held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xix. A reactive precursor feeding manifold assembly (40; Figure 3), comprising; an elongate body (41a; Figure 3) comprising an elongate plenum chamber (inherent - needed to convey gases in 41a), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a longitudinal axis (axis of 41a; Figure 3), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a first longitudinal axis end (bottom 41a; Figure 3) and a second longitudinal axis end (top of 41a; Figure 3); Onda's plenum chamber (inherent - needed to convey gases in 41a) comprising a single inlet received along Onda's longitudinal axis (axis of 41a; Figure 3); respective precursor feed streams (70/71; Figure 2) on Onda's body (41a; Figure 3) feeding to Onda's plenum chamber (inherent - needed to convey gases in 41a) precursor inlet, Onda's respective precursor feed streams (70/71; Figure 2) including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with its plenum chamber (inherent - needed to convey gases in 41a) precursor inlet and which is oriented substantially normal to Onda's longitudinal axis (axis of 41a; Figure 3); respective multi-inlet valve (V49; Figure 3) positioned proximate Onda's body (41a; Figure 3) in Onda's respective precursor feed

streams (70/71; Figure 2), the respective multi-inlet valve (V49; Figure 3) having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source (50; Figure 2), another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet to Onda's plenum chamber (inherent - needed to convey gases in 41a) at Onda's first longitudinal axis end (bottom 41a; Figure 3) and upstream of all precursor inlet 49; Figure 3) to Onda's plenum chamber (inherent - needed to convey gases in 41a); Onda's purge gas stream including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with Onda's purge gas inlet and which is substantially aligned on Onda's longitudinal axis (axis of 41a; Figure 3); and Onda's body (41a; Figure 3) comprising a plenum chamber outlet (outlet portion, not labelled, of Onda's body) at Onda's second longitudinal axis end (top of 41a; Figure 3) configured to connect with a processing chamber (below 41a; Figure 3), as claimed by claim 45 – Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

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- xx. Onda's manifold assembly (40; Figure 3) of claim 45 wherein the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet, as claimed by claim 46
- xxi. Onda's manifold assembly (40; Figure 3) of claim 48 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 51
- xxii. Onda's manifold assembly (40; Figure 3) of claim 45 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labelled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), the respective multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Onda's processing chamber (below 41a; Figure 3), as claimed by claim 52
- xxiii. Onda's manifold assembly (40; Figure 3) of claim 52 wherein the multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted are totally received within peripheral lateral confines of said chamber housing, as claimed by claim 53
- xxiv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein Onda's plenum chamber (inherent - needed to convey gases in 41a) purge gas inlet is on Onda's longitudinal axis (axis of 41a; Figure 3), as claimed by claim 54
- xxv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet - claim 55
- xxvi. Onda's manifold assembly (40; Figure 3) of claim 55 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's

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body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labelled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), and wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 57

- xxvii. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet; structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labelled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), Onda's structure (41a/41b interface; Figure 3) being configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's longitudinal axis (axis of 41a; Figure 3) being substantially vertical, as claimed by claim 58

- xxviii. Onda's manifold assembly (40; Figure 3) of claim 58 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 60

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make integral any of Srivastava's valves (any one of 36; Figure 1b) with Onda's 3-way valve (V49; Figure 3) and add a flange portion to Srivastava's body (10b; Figure 1b; column 3; lines 20-44) as taught by Onda.

Motivation to make integral any of Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one, while motivation to add a flange portion to Srivastava's body as taught by Onda is for creating a hermetic seal between Srivastava's body

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and Srivastava's processing chamber and the exterior environment as taught by Onda (column 7; lines 54-61). Further, it is established that the use of a one piece construction instead of interconnected components is obvious (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

Response to Arguments

8. Applicant's arguments with respect to claims 14-21, 31-38, and 45-61 have been considered but are moot in view of the new grounds of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.


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